

Frank Hogg Laboratory, Inc.
770 James Street
Syracuse New York 13203
315/474-7886

The All OS-9 User Group Members

Subject: SALE to reduce the OS-9 User Group Debt

As many of you know the UG is in debt. The UG needs our help.

The best way to help is for you to join or renew your membership in the UG. Nothing is better than dues-paying members. Remember that without the UG name of that fantastic FREE software would be available. For that reason, where else but in the MOTD-can you get unbiased information about OS-9 products. The UG is important to us all and we all need to support it.

As the largest supplier of OS-9 based products, we at FHL felt that we needed to help in whatever way we could to get the UG back on it's feet. We are going to donate the profits from the sale of these selected products to the UG. They are listed below. To further encourage you to join/renew the UG, we are only going to offer these items to paid members of the UG.

So here's your chance to get a good deal and help the UG in the same time. But remember you have to be a current member.

Thank You
 Frank Hogg
 President FHL

Sculptor for 6809 OS-9 (CoCo)	List \$450	Sale \$149	UG gets \$300
Sculptor for MS-DOS	List \$595	Sale \$149	UG gets \$300
Sculptor for OS-9/68K	List \$595	Sale \$295	UG gets \$600
DynaStar for CoCo/6809 OS-9	List \$150	Sale \$100	UG gets \$300
DynaStar for OS-9/68K	List \$400	Sale \$300	UG gets \$400
The Wiz for CoCo OS-9	List \$79.95	Sale \$70	UG gets \$15
Inside OS-9 Level II book	List \$39.95	Sale \$25	UG gets \$5
QT 60x 68000-computer w/30-Meg HD	List \$2995	Sale \$2900	UG gets \$100
QT 20x 68020-computer w/30-Meg HD	List \$3695	Sale \$3500	UG gets \$200

The fine print: The sale is limited to current members of the OS-9 Users Group. The sale ends May 31, 1989. To orders include your name and UG number number. Payment may be made via VISA, MC or check etc. There does not include shipping or any taxes. You may order by phone. The sale is limited to the above items. You pay the sale price, we send the UG the profits. Everything went!

you'll get an extra 50 days support on the entire operating system (for just! I have printed this pricing memorandum out in Microsoft, and have made the suggestion to certain SCOUG Microsoft Basic AND the C compiler. Let's see how long it takes them to figure out that this really would make more sense.

Erasing OS-9/ST, a simple task. Just insert the "OS-9 Start Disk" and power up the computer. You are then instructed by

an on-screen message to "erase the OS-9 Start Disk" and within a day. That's a job not greeted by a welcome message and profile among OS-9/OS9000. The supplied starting file (using the supplied "test" file editor in the menu) tell users either to change the file which reads "erase" to "test" or "erase" to "eliminate" that message. In the menu, the user is told that the user is now permanently need during starting and use OS-9's test and disk erasing by

One of the first things I decided I was going to keep to do was to look a 3.25" disk drive in the ST so that I could transfer all of my existing OS-9 software onto 3.5" disks. I began by buying a standard disk disk

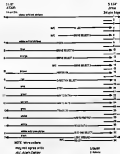
drive unit and cutting off one of the two 14 pin DIN connectors on one end. I then carefully soldered each wire on the exposed end to a standard 34 pin edge connector according to the diagram in figure A. I dug out a double half-height disk drive (microprocessor supply I bought). At 10:00 on a Wednesday I set procedure to play with various disk drives I had lying around. The fun began. I quickly realized that not just any 3.5" disk drive would work where connected to the floppy disk port on the back of the ST. In fact, of all the drives I tried (including Shugart, Minolta and Teac), only a Teac model of 31 PW90 (720k, 80 tracks, 510ps, 40-

40- 3100 on Cakeloom DiskHD would work. And even then, a man's very reliable and I replaced a 300 ohm pull-up resistor on the drive select line (panel A9) with a resistor near the forwarding resistor pack with a 1.2K ohm resistor, and completely removed the terminating resistor pack. Now it was as functional as in I thought I proceeded to insert one of my stacks of Microvare format 3.5" disks into the drive and do a "test" or "erase" procedure. In fact the current file named that I have related on the disk, but the

When I was all done, I tried reading my disk once again. It still didn't work! A call to Atari technical support confirmed my fears. The Atari disk controller (CA9400) and on some single density AT ALL. Luckily, the newly manufactured computer system I have access to at work was able to read and write disks in 800K standard Microvare format AND was which was compatible with the 3.25" on the ST. I just used Macintosh's command "Format" (alt shift) to change the format of all to the OS-9/ST format and proceeded to copy

all my software onto it. I was then able to data formatted in the new format on my own. That's the reason I'm not FOR OS-9/ST, though the Atari 3000 already had and was Cakeloom OS-9 format disks by simply making an appropriate device description within. This is because, like on the Atari, Cakeloom disks are double density on all media. If I had been converting from a Cakeloom OS-9 system (most of you that used the standard Microvare OS-9 format disks, I would not have had a problem). As an aside, I have learned that Microvare may be seriously considering a change to what they consider to be their "standard" disk format. Whether they choose, I believe it will be soon the same which is double density on ALL media. Like the format used for Teac's, Atari and many computer systems.

After having a couple of weeks to play with OS-9 on the Mega ST, I only have a couple of com-



ments, dates and formats (i.e., all manner of files) were obviously messed up. The system also would not let me read or write anything on the disk. Just then it occurred to me that Microvare's OS-9/ST disk format might not have stuck off in single density. A quick check of the current type in the old driver description module revealed this. So I proceeded to follow the rather complicated procedure outlined in the Microvare manual on how to erase now device description. While I was at it, I also modified the floppy disk status function outlined in the manual (very nice feature) and stored above the step run to a more reasonable date on a 3.5" drive.

First of all, the select statement and background color functions do not work. In fact of course to know you have a color system but can only read black and white out of OS-9 files. I am disappointed at how difficult it is to examine a device description. It is especially annoying because the floppy disk description, as supplied by Microvare, do not have disk coloring enabled! I can't imagine why on earth would not want to use this feature as it tremendously speeds up disk-intensive tasks. So virtually 100% of everyone who buys OS-9/ST is going to have to build new descriptions and a host file, unless they are willing to give up

OS-9 USERS GROUP LIBRARY - 12/03/87

VOL. TITLE	DISK CODE	NOTES
00 486 Utilities	(disk #1)	1
10 486 Utilities	(disk #2)	1
20 486 Utilities	(disk #3)	1
30 486 Utilities	(disk #4)	1
4 486 Utilities	(disk #5)	1
7 Adventure Game (object)		2
8 Adventure Game (source)		4
17 Pascal Programmer's Tool Kit		1
24 C Language Main Library	(pp only)	0
9 C Programmer's Tool Kit		2
42 C++ Graphics	(disk #1)	1
43 C++ Graphics	(disk #2)	2
15 C++ Graphics	(disk #3)	1
37 C++ Graphics (MS-DOS format)	(disk #4)	2
39 C++ Graphics (TurboC)	(disk #5)	4
44 C++ Graphics (Borland)	(disk #6)	1
50 Data Base Management (MS-DOS LIB)		4
14 File Maintenance	(disk #1)	1
24 File Maintenance	(disk #2)	1
34 File Maintenance	(disk #3)	1
44 File Maintenance	(disk #4)	1
5 File Processing Units	(disk #1)	1
15 File Processing Units	(disk #2)	1
25 File Processing Units	(disk #3)	1
35 File Processing Units	(disk #4)	1
45 General Interest	(disk #5)	1
55 General Interest	(disk #6)	1
6 General Interest (forms, games, letters)		1
10 Hardware Communications	(disk #1)	1
20 Hardware Communications	(disk #2)	1
30 Hardware Communications	(disk #3)	1
40 Hardware Communications	(disk #4)	1
50 Languages 1 (BASIC-object)		1
60 Languages 1 (BASIC-source)		4
10 Mod & Electronics		1
20 Mod & Electronics	(disk #2)	1
3 New Member Issue		2
4 Programming Utilities		1
14 Programming Utilities	(disk #2)	1
24 Programming Utilities	(disk #3)	1
34 Programming Utilities	(disk #4)	1
44 Programming Utilities	(disk #5)	1
1 Spelling Check (New Ver. 0.9 & 0.0)		4
2 Spelling Dictionary (MS-DOS words,MS-DOS)		2
15 System Utilities	(disk #2)	1
25 System Utilities	(disk #3)	1
35 System Utilities	(disk #4)	1
45 System Utilities	(disk #5)	1
55 System Utilities	(disk #6)	1
60 Text Processing Units (Shell)	(disk #2)	2
65 Text Processing Units (MS-DOS, Shell)	(disk #3)	1
70 Text Processing (Microsoft BASIC)	(disk #4)	1
75 Text Processing Units (MS-DOS for Lib)	(disk #5)	1
8 Text Processing Unit	(disk #6)	1
9 Text Processing Unit	(disk #2)	1
10 Text Processing Unit	(disk #3)	1

NOTES

1) A complete "thermal" version of a TYPE plus a CODE, for example, format 84 as CoCo 70 as 00.

Type "A" Type "B" Type "C"
MS-DOS CoCo OS-9 Atari Disk
(3.25") (3.25") (5.25")

Code

1 321 ms disk 331 ms disk 301 ms disk
2 321 ms disk 331 ms disk 301 ms disk
3 401 ms disk 401 ms disk 301 ms disk
4 401 ms disk 401 ms disk 301 ms disk
5 401 ms disk 401 ms disk 301 ms disk
6 401 ms disk 401 ms disk 301 ms disk

2) All of the above volumes are available on Microsoft standard, Apple II, 3.5", and TRS-80 Color Computer (at 18 pages/track, max.) format. Specify "TYPE" when ordering a listing or Color Computer specify "TYPE C" if listing. Check on an Apple II computer. Please remember that some volumes of the Library will not fit on all formats of disk. If you do not specify the format you desire, you will be shipped under Microsoft standard 3.5" OS-9 format. (i.e., "TYPE A") on the format we have on file for you specified by you on your original membership renewal application.

3) Final orders to the main US address. Orders not mailed on the calendar of the magazine "CODE, ORDER" will be delayed an additional 4 to 6 weeks. DO NOT SEND ORDERS OR INQUIRIES TO "LIBRARY".

4) The ENTIRE OS-9 LIB Library is presently available as a special set of disks in US format (as ONLY). Please note that this set contains all software that is presently contained in the US Library. LOCUTY the spelling dictionary, which is ONLY available on the individual Volume 40 library disk. This volume set is presently unavailable in Color Computer format.

5) To receive any of the above individual volumes from the OS-9 Users Group, send \$4 for each 3.25" disk, and \$6 for each 3.5" disk to the main address of the OS-9 Users Group.

Payment for disk orders may be made by check, Master Card or Visa ONLY. Please remember to include your complete mailing address, telephone number(s), a description of the disk format you want (set, of course, your payment).

OS-9 Users Group
Suite #207
2718 East Fowler Ave.
Tampa FL 33612

Orders will be accepted from MEMBERS ONLY!

OS-9... When You Need A Knock-Out Punch!

You find a lot of problems when it comes to operating systems for your VME hardware, but only one real clump — OS-9. The one know that OS-9 is a mean and fast, not later fighter machine when comes to software development problems. And because of OS-9's modular design, you can learn up without spending nights sleepless in challenge your mean corporate wide spectrum of applications — from transaction products to large scale systems.

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OS-9 means the competition with a superlative 68 computer — also available as an optional 68020 system — that performs best known 68020 code for your most demanding applications. And for small main frame products the C compiler is source compatible with 68020 applications and available on your computer configurations for both 68020 and 68010 hardware. When you need a powerful assembler, Linker, Symbolic Debugger and even C Source Level Debugger, you're in charge development. Plus, you can use our Efficient TCP/IP support package to connect with UNIX environments for real time process control.

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Phone 515-224-1925

MICROWARE REGIONAL OFFICE
4800 Great America Parkway
Santa Clara, CA 95054
Phone 408-998-0000

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Tandy FD-502 Double-Sided 40K Secondary Drive Fix

- Kevin Dering

10 Apr 88

PROBLEM

As we all know, the CoCo actually runs on both drive motors, even though it actually only can drive for seven at a time. This means that (for example) operations between drives need not wait for each drive to spin up to 3000ps/sec (and a rotation from drive 0 to drive 1 for one way). So normal operations (and all disk drivers for the CoCo) assume that all drives are ready to use (spin up) if the motor has a on. In fact, this has been true.

However, the "second" disk drive used in non-dedicated FD-502 units has a jumper mistakenly assigned by the manufacturer. These drives (as they come) "ignore" the master line, and instead spin only when selected. This means, of course, that every time you use your drive 1 light goes on, it takes it a good fraction of a second to get "to speed". While the light goes out, the drive stops again. This can make disk operations variable (and directly with symptoms similar to drives with headload delays.

WHO SHOULD FIX

Probably everyone. There seems to be few problems with ESDOS, it is normally run at only 10MB/sec, and has long delays. OS-9 operations with the standard ESDOS at 1.44 speeds have occasional problems (especially when copying from / 00 to /01). It seems to be at least partially disk controller dependent also. Those using third-party disk drivers should do the fix. It's also possible that some

ESDOS applications that do their own disk accesses could fail.

It is a "fixer" fix if you wish to use the new Drive Super Controller II, with the CoCo Level Two socket drives. To properly use such new /01 is selected takes an unacceptable wait in disk access times. Even if you're using a regular disk controller and drives, it costs extra time for the controller chip to recognize a given sector as drive 1 speeds up.

CHANGING THE DRIVE

To see if your drive sets the way, remove the first master jumper that holds on the new top drive, while observing the top (/01) drive, try the following under ESDOS:

FOUR SECTORABLE - if the master SECS error on with the light, you need the fix.

FINALLY, THE FIX:

1 Remove the top drive. There are two screws on each side holding it in.

2 Momentarily unground the two holding the top, and tying it back.

There is also a fix power connector you could make, but be careful, the lines on the fan power can back off (jump to another, etc).

3 Pull off the black/yellow/red power cable, and the main 100-ohm resistor cable. Now lift up or slide out the drive, being careful to hold up the drive so it doesn't fall on the bottom drive.

4 Look at the top. Remove the two flat plastic headload cables that connect to the circuit board visible on the left side, by lifting up on the top of the plastic heads that they go into. This releases the headload cables in the cables, and they now will pull out easily. Remove also the 4-pin cable that goes forward to the interface and wait-power screws.

5 Flip the drive over. Remove the three current limiting screws that already found, and remove the two cables attached to the motor.

6 Now look at the top of the circuit board. At the back and closer to where the CoCo controller cable plugs in, you'll see two small four-way pins soldered in. One is even by pin 24 (ground) that set:

7 On the side nearest pin 1 of the biggest segment in the other 12 is one of two sets of holes marked "2". Remove or clip it, and install it on another one or between the other marked set of holes. This requires soldering in the new jumper, so be careful. That's it.

8 For everything back together and try these steps.

FOUR SECTORABLE - light should come on, no error.

FOUR SECTORABLE - motor should come on, no light.

FOUR SECTORABLE - motor and light should come on.

FOUR SECTORABLE - turn off everything.

Ed Note: See page 20

HARD DISKS - HARD TIMES

By Bill Brady

I don't like computers, in fact, if you want to criticize my style, it is that I am too many "hard as hell's" when better style would be "better". It is no time, however to turn a and stay something hardware, disk drives, and hard disk drives in general.

Recently an associate was looking for a hard disk drive. He brought in an old 40K, pointed to it and said "Oh, should I buy this?" I looked and saw an old for a hard disk package at a very low price. I said "Well I think this is a fix, you may not be able to get it up". The reply was "Well not me" so I did I was told that the package was completely unopened, for mail, and ready to go. "No, it is not a fix". I was also told that the interface contained a real-time clock. I was also

and it was available for shipping within a few days. This was good enough for my budget limit, and he ordered it.

Several weeks later, he called "well, the disk drive really came on, you know right. It is a fix. I've got it together, but I am about to run it out". Reply "Bring it."

When he showed up with was, well, a strange beast. He had a DataSentry (NO clocks) a WB controller, and a SECS drive housed on the custom HTS case I've never seen. The cables barely showed the MFM, and there were many few cooling fans. The very first thing I saw was "Oh you can get a fix in this thing". We did, however, get it up and running, but the next day I received a phone call "the HD

disk, I was using it, and did a fix and it crashed, it wouldn't re-load" and "It was too late to load".

Putting together a hard drive from a fix is cheap, but a job for an experienced OEM technician. If you haven't done it before, do your self a favor, buy a package that is sold as a package. I bought an OVL-WIN myself (it is a CBT) over three years ago, which I just plugged it in and it has been running ever since. Frankly this also calls computer packages.

All hard disks need a fix. And sometimes, unopening a disk package, if a problem comes up, is almost impossible if you don't have the proper tool support, even for the best of computer multi-tasks.

Getting SAS-ay With Your Disks

by Pete Lyall

Whether disks are storing hard data to be most affordable, or auxiliary for increased storage capabilities, some combination of the above is coming more of them to appear on Good (and other) OS/2 systems. With all this space, power, and capacity comes the the inevitable lot of questions and confusing options. I won't attempt to deal with them all here, but I will try to show the way to a couple of direct and pain-despiteful options that seem to be giving some new hard disk owners a bit of a long time. I SELECT (summary of action per cluster) and DISMAP (summary sector information size).

Since the DD INIT is a bit easier to access, let's do that first to get warmed up for the others stuff. Another good name for DD INIT might well be "clusterize" in order to understand what clusterize is, we're going to have to dig a hole to see the layout of the disk. All disks, in theory floppy or hard disks, have at their disposal the same when they are actually formatted. There are:

- a - Logical Sector Number Zero (LSNZ)
- b - Disk Maping
- c - Root Directory

The LSNZ is essentially a sector containing all the information about the disk's geometry. It contains information on how many tracks and sectors the disk has, and also how many sides per head, in the case of a hard disk are available. Cluster information includes the time that the volume (disk) was created or formatted, when the sector is, where and how large the sector is (if any), the disk name, and finally the format information. This format information is the the system's hard-way bytes are in the format, and what the disk is in relation (clusterize) of the space that such file is the map represents. Here is this as a matter:

The format is basically a map of the space available on a disk. Each bit of track bytes in the format represents a block of space on the disk. The analogy in the format would be the format that you might use as a restaurant when you are in the magazine area. Tables that are marked on the chart with an 'X', or point to the restaurant by an 'LSD', indicate that the table is in use. Tables that are not explicitly marked are available to be used. Mark a table with the 'X' along, if a bit is in the 'X' along, it tells the sys-

tem that the block of disk space that it represents is in use. What the space is used for is of no consequence in the format. I would be part of the, a directory, or even part of the format itself. Conversely, an off bit (0) indicates that the space is available for whatever needs it.

Since that I have managed to avoid delirium long the space is. The format² is a variable. Each bit in the format represents one cluster. The size of this cluster is defined as DISMAP in LSNZ, which is told by the system before any other manipulation of the disk is done. A cluster may be from 1 to 1024 (1024) sectors in length. Usually for a computer³ almost everyone uses a cluster size of 1. So why bother with all this confusing stuff of clusters and sectors? There was a time in OS/2 history when before double floppy was the predominant concept for use. I'm going to leave a guess and say that early OS/2 programmers decided to limit the length of the format to 1 sector, thinking they wouldn't need any more. After all, if you consider the case of clusterize = 1 sector, and a formula of $CLUSTER * SECTORS / 1024$ per $BYTES / CLUSTER * DISMAP$ SECT. a single-sided 10 track, double density drive at 10 sectors per track (formatted off format) only required 70 bytes of format space ($10^2 * 1024$), and a single-sided 70 track 10 track disk, at 20 sectors per track would be only 210 bytes of format space ($70 * 20 * 1024$). The problem came with drives of higher capacity. A conventional double-sided 80 track drive would require the format sector $1024 * 1024 * 1024 = 100$ bytes. You can easily imagine how a hard disk might affect this situation. Later clusterize. If the clusterize is set to 2, each bit in the format now represents 2 sectors of disk space. In the case of the 80 track floppy drive, the disk the format is $1024 * 1024 * 1024 = 100$ bytes. As a clusterize of 2 sectors, the format now represents roughly 1 megabyte of space. Clusterize 2, at 100 bytes enough for even the smallest hard disks. The cluster size would have to be raised to 10 sectors to represent a 1 megabyte drive in a one sector format. For a 20 megabyte drive, each bit in the format would have to represent 40 sectors, and it gets progressively worse with larger drives. This is where we the start to see the flaw in this design. Suppose you want to create a very short program file that were to contain the command:

This file should require only about 20 bytes including the carriage return. Assume the hardware prevents us from saving anything smaller than a sector. For the size will be 20 bytes, but the disk space used would be 1 sector. Assuming that we first store this on the DD floppy drive described above, we would actually have used 40 sectors of disk space (10 physical - a waste of 30 sectors. Why? Because the minimum check that we could make in read or write is in 10 format was 40 sectors. When we marked the area as in-use, we also marked the end of the cluster as in-use. What a waste!

Fortunately, clusterize 24 the same way and almost the format change. Now the format may be more than one sector in length. In fact, it may be up to 10240 bytes long (1024 sectors). The equation of bytes in the format is clusterize was 1,0240 = DISMAP. The format would be large enough to contain a 100 megabyte hard disk. For larger disks, the clusterize is increased to accommodate the capacity. A clusterize of 2, the minimum, would handle more than 1 gigabyte of storage. The current format size will clusterize making it capable of supporting a disk that could be 1,073,741,824 sectors, or approximately 154 gigabytes. I think it should be so for a while, eh?

That's probably all you'll ever want to know for many about clusterize. For all most all practical purposes, it should be left at a bit of 1 sector per cluster. This is sufficient to support some of us with disks that are 100 megabytes or smaller.

The DISMAP, or again, clusterize size is used to determine how much of the disk's real estate is given up each bit in the format for each disk that is used. The disk is divided in the device description for each disk in type offset 120. Why not just give the calling program the position of a sector at a time, as they need it? In a word - Organization. This is, your file could end up being seventy sectors over the disk's surface. This means that the data might have to be read 70, or moved back to different locations on the disk may have to be made. Also, you could potentially run out of segment disk space.

Finally, each file and directory has a size we are made for in the device, in the format. This is known as the file descriptor number, or FD sector for short. In the FD sector are data representing the owner of the file, the date of creation and

what This is a bad idea

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Adrian, Now, I hope to say that there is not enough time to explain this, but I will try. The main may not be the only way to do things in "the place" and, one reason is that it makes my job a whole lot easier, as there is plenty of time on a line, making information unnecessary, and creating the possibility of error that needs. Also, I do not believe the things of some code being in a particular because they are generally available "online" some place else. However, these things even show OS-P-C, and, perhaps as it may be, and as valuable in understanding my job, C and its relationship to OS-P.

APRIL 22, 1987

TANDY CORPORATION ANNOUNCES MAJOR BREAKTHROUGH IN OPTICAL MEDIA: TANDY THOR-CD™, THE FIRST CD-COMPATIBLE RECORDS & ERASE TECHNOLOGY

NEW YORK CITY: Tandy Corporation announced today a revolutionary development in optical disc media: TANDY THOR-CD™. With the introduction of TANDY THOR-CD technology, it is now possible to record and erase digital information on a CD-compatible optical disc.

Using a laser beam, TANDY THOR-CD can repeatedly record, playback, erase and erase again, data on discs on a disc that can be used with all existing CD audio and CD-ROM players.

Just as important, TANDY THOR-CD will be an inexpensive media. It is expected to be less expensive than other laser digital media formats, including digital audio tape (DAT).

"TANDY THOR-CD will have applications in several fields of electronics," noted John V. Smith, CEO and Chairman of the Board of Tandy Corporation. "TANDY THOR-CD's commercialization in audio should be rapid, as applicability to mass memory is being sought also, and it may have video applications as well."

What makes TANDY THOR-CD the technological breakthrough in optical media is that the pins, while conventionally stable and permanent on silicon, can be erased allowing erasing and re-recording, over and over again.

Because the optically-formed pins resemble those in a conventional, molded CD in its form and function, TANDY THOR-CD retains all of the extraordinary qualities of current CDs.

TANDY THOR-CD technology is the result of research and development in the Tandy Magnetic Media Center in San Jose, Calif. Technicians testing the customized TANDY THOR-CD ability to record, erase and playback digital information that is virtually indistinguishable from the original master material.

What's more, creating a previously recorded signal automatically erases the media to its original state, ready for the next recording.

"On several occasions," according to

last December on the hardware and the media. The additional cost in electronics and drive mechanisms should permit play and record discs to be offered in the early years of development for under \$200."

"The most likely commercial product," continued McClure, "is a disc storage device which requires greater protection and some shielding capabilities. TANDY THOR-CD technology will fit in the high-density storage field with storage capabilities in the hundreds of megabytes per five-inch disc."

The success rate relating to TANDY THOR-CD is comparable to CD technology, as there is no difference in access time or data transfer rates between a TANDY THOR-CD and CD-audio and CD-ROM.

"It is a potential winner," added McClure, "optical disc systems have an advantage in floppy discs. However, those projected for the future are even more encouraging. With access time being a function of equipment, rather than media, new developments of extremely low-cost holographic heads show promise of dramatically reducing access time comparable to that of hard discs."

"Tandy," stated Smith, "is actively working with key electronics manufacturers around the world to license this technology for use in hardware and for production of media. The likelihood that very low cost mechanisms to implement the technology will be developed makes a highly accurate."

Organizations interested in participating in the development and production of TANDY THOR-CD™ Technology should contact TANDY THOR-CD Technology, Inc., 1320 Glen Tandy Center, Fort Worth, Texas 76102. Telephone (817) 394-9491.

Tandy is a registered trademark of Tandy Corporation. TANDY THOR-CD is a trademark of Tandy Corporation.



TANDY THOR-CD playback extracts data by using techniques used in conventional optical discs, using a laser beam to read a series of microscopic pins in a light reflecting disc.

Robert McClure, President of Tandy Electronics Manufacturing, "the first commercial use of TANDY THOR-CD will be CD-audio. We believe there is a present and substantial market for a recordable CD-audio disc. CD-audio is also the

Is This computer the next OS-9 "Mainframe"?

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Tandy has announced the 5000 MC Professional System. OS-9 users who have wanted the true System CPU chip set in the IBM PC and clones say that the 5000 is the first to take series capable of supporting true multi-tasking, multi-user, honor OS-9.

Microprocessor	Intel 386	Keyboard	24 keys
Clock Speed	20 MHz	Expansion	5 IBM Micro Channel (2-DMA, 1-MB)
Multi-Processor	Optional 80387 MMX	Interfaces	3 memory slots Mouse Port, 1 RS-422 port, 1 parallel printer port
Memory Cache	Intel 8250 16k	Clocks	Battery Backed
System Memory	2MB (Standard) to 16MB possible via slots	Dimensions	14 1/4 x 17 x 14 1/2 INCH
Video Support	1MB/2MB pixels x 256 colors		
	640x480 pixels x 16 colors		
Disks	16 or 32 (16 colors) per slot	Price	\$499, \$699 w/ 40 meg, \$899 w/ 80 meg
Disk Controllers	144 pin 1.2" floppy internal SCSI, ST-506/486 64 MB drive		Ctrl. Non-Micro Channel 5000
	ESDI 2 drive capable		

Update or Tandy FD-50? Does this page
14. Krenn reports that all Tandy 260
series drives need a master file. We will
post more info later when it becomes
available. (More time, about your favorite
software services if you are having
problems.

Cooling Next Issues:

Micro-wave Oven, C source
adapters?

Windows for the Atari (ST)

OWL-Wave BSH keyboard
adapters?

Complete UG Library
descriptions, including latest
see numbers.

CoCallin Revisited.

Latest Wta news.

Scripter review.

Users Poll.

Also coming soon:

Home Publisher

Photomograph

CoDe 3 apple screens on the
Atari!!

Kevin Darling has been working on
multiple device windows in the UG
OSK. Check the Computer's and
Single disc libraries for One Copies
of the system, window?

Business **WIZ** developer. The next
version of Wta will allow user install-
able extensions such as protocols, termi-
nal emulators, and assemblers. If you
wish to start work in this area, please
become a registered Wta Developer. A
fee of \$85 is required, plus \$50 for the
Wta-2000 version if desired. You will be
sent Alpha copies of the programs,
plus notes on how to create extensions.
This offer is open to programmers and
non-programmers alike, but for a limited
time. If you do not have alpha Manual,
you will need to purchase some, and
to ST. Contact the author (Jim Brady)
NOT RE.

Official UG Tee Shirt STILL Available!

Announcing the availability of the
official OS-4 Users Group Tee Shirt.
The cotton/polyester short sleeve
shirt is imprinted with a very high
quality "Tall Head" four color silo-
screened image that has to be seen
in the full-sized photograph of the
April, 1987 *AmateurPress* in Chicago.
Know what we mean? The shirt
are available in women's for \$21.00
(\$2.50 each sleeve, or \$20.00 (12.50)
if accompanied by payment of OS-4
Users Group membership or renewal
 dues. The price per shirt is also
\$20.00 (\$2.50) if there are more shirts
are ordered in one item. Postage to
superior in the U.S. and Canada is
included in the price. Make sure you
carefully specify sizes (adult S, M,
L, XL) of all items ordered. Please
allow 4 to 6 weeks for delivery.

Now, you may also receive the OS-4
Users Group "diamond shirt" just
call for our size.

WHAT IS TWIN CITIES OS9 USER GROUP?

The Twin Cities OS9 User Group is a
group of individuals throughout the Twin
Cities and surrounding 7 county area
who are interested in the OS9 operating
system and its related programs and ad-
dresses. Primarily we were created to pro-
vide the local OS9 to investigate and
anyone who will let us hear their out.

We are interested in obtaining mem-
bers who are already familiar with OS9
as well as the general day to day user
who wishes to learn more about this
business will help more. We hope to
exchange many ideas on the operation
of the system in general and in the various
applications and utilities in general
for.

TCOSUG operates a Member Table
on-line from our coverage and various
actions as well as a complete library in
public domain and otherwise download
files. We welcome your comments, sug-
gestions and updates.

TCOSUG INFORMATION:

ADDRESS:

Twin Cities OS9 User Group
P.O. Box 12197
New Brighton, MN 55112

PHONE NUMBERS:

DATA:
(612) 788-8734 (4888) 366/81
(612) 788-8734 no-line news

VOICE:
(612) 788-3719 (11AM-1PM
ONLY, Please 7 Days a Week

SYSP:
Charles C Cook (312/7)

Handmade Mail Addresses for Users Group Offices

	Group/Server	Dialup	Other
David L. Kalaria Pres.	703/512-5271	009/037M55	
Paul Lyell Vice President	703/512-2130	009/037P	
Gregg Cooper Treasurer	703/512-1184	009/037Tn	0.009/037
Kevin Darling Secretary	703/512-4220	009/037B40	
Carl Kessler Librarian	718/75-75	009/037L80	
Bill Kinley Editor	703/234-2671	009/037D	0.009/037
Steve Parker	714/44-7346	009/037	0.009/037
Donna W. Long			

To sign up, call the secretary of your choice at the following phone no.

Computer: 1-800-842-0099 (ask for an "OS/9 Ed") Dialup: 1-800-344-8807
 009/037 Jacobson 1-800-648-0087 when connected type 009/037 then at Lin-type
 009/037 Jacobson

If need to make a choice, the following table is provided for comparison:

rate	300	1200	2400	4800-14400	14400
CDI	\$6.70	\$12.70	\$12.70	\$45.00	1 minute
Dialup	\$2.00	\$7.70	\$ 1.20	\$45.00	2 minutes
Other	\$2.00	\$4.00	\$12.50	\$25.00	1 second

Working manual

There are other considerations when choosing an option. CDI is the easiest, most direct way, with the least amount of time to set up, which is good if you are not sure if you will be using it. Dialup is often used for a trial run, but it is a bit more complicated to set up. Other options may be used for a trial run, but they are not as easy to set up. Also, if you are not sure if you will be using it, you may want to try a trial run. If you are not sure if you will be using it, you may want to try a trial run. If you are not sure if you will be using it, you may want to try a trial run.

COMPLAINT FORM

Please write your complaint in the space provided.



Just say NO!

The International Newsletter of the OS/9 Users Group
 March/April 1988

BLACK PINE
 U.S. POSTAGE PAID
 HAWWOOD, MD
 PERMIT #9

MESSAGE OF THE DAY

88/05/26

Address Correction Requested

RAINBOWTEST - CHICAGO

May 20 - 22/1988

Hyatt Regency Woodfield